

Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT"

Inventor's Name: KUTT et al.

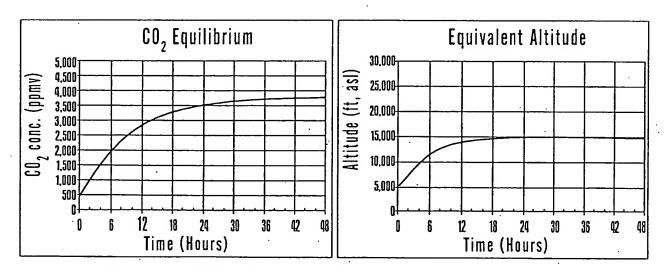
Serial No. 10/806,886 Docket No. 4239-3-1-1 Attorney: Joseph E. Kovarik Telephone: 303/863-9700

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Room Size	·
Length (ft)	10
Width (ft)	10
Height (ft)	10
Altitude of Site (ft asl)	5500
Number of People in Room	1
O ₂ Removal Rate (slpm)	5
Number of Systems	1
Per Person Heat Generation (w/m²)	45
Initial O ₂ Content (%)	20.94
Outdoor CO 2 Concentration (ppmv)	400
Initial Room CO ₂ Conc. (ppmv)	400
CO ₂ Scrubber Air Flow Rate (cfm)	0
CO ₂ Scrubber Efficiency (%)	80
Air Change Rate (ACH, hr -1)	0,1

The Information Required for Initializing The Computer Model.

FIG. 1



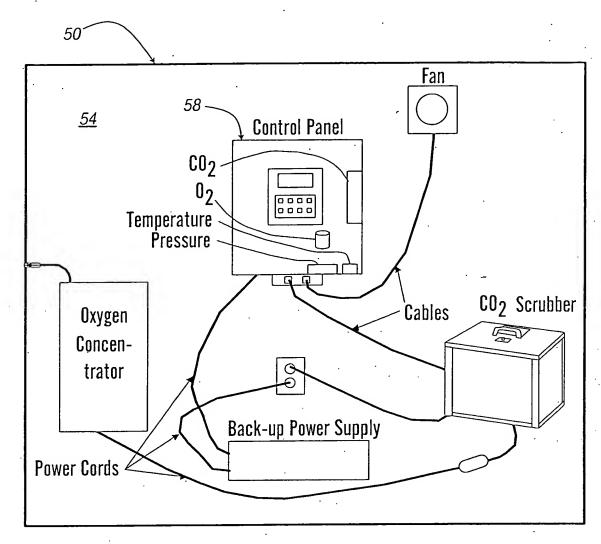
The Predicted CO₂ Concentration and Simulated Altitude Inside the Colorado Mountain Room as a Function of Time.

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The Colorado Mountain Room as configured for use in a person's bedroom.

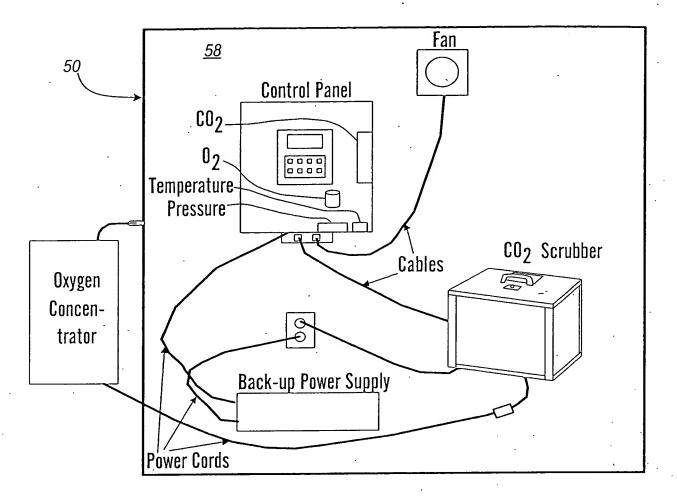
FIG. 2

Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT"

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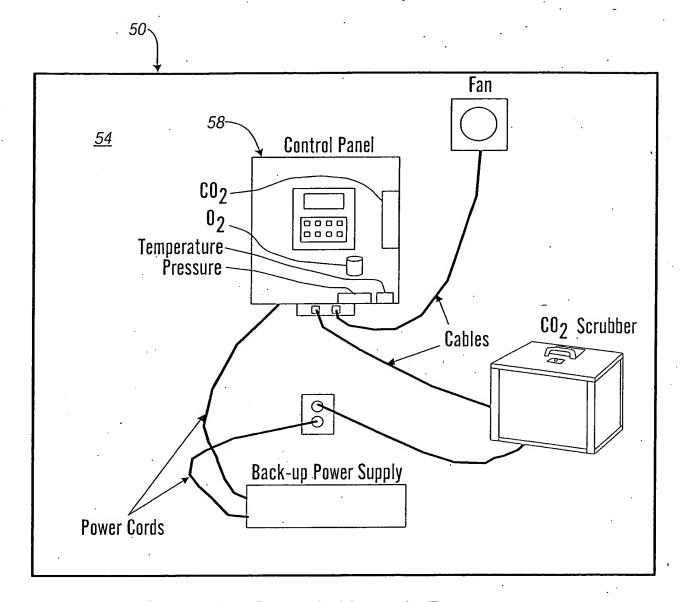


The Colorado Mountain Room, configured for use as a low altitude room.

FIG. 4

*METHOD AND SYSTEM FOR REDUCING BODY WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT" Inventor's Name: KUTT et al. Serial No. 10/806,886 Docket No. 4239-3-1-1

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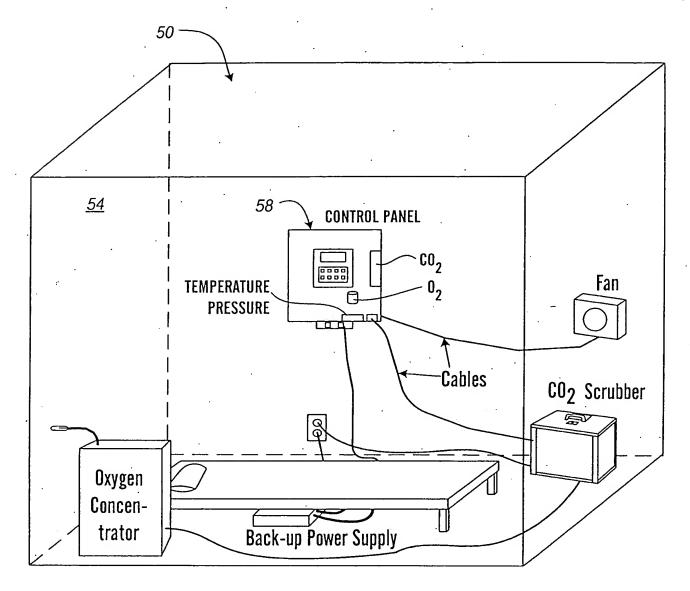


The Colorado Mountain Room, configured for use as a high CO₂ room.

FIG. 5

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Portable CMR, configured for use as a high altitude room.

FIG. 6

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50 <u>54</u> 0_2 Sensor co_2 Sensor CO₂ Scrubber Oxygen Concentrator

Portable CMR, configured for use as a high altitude room.

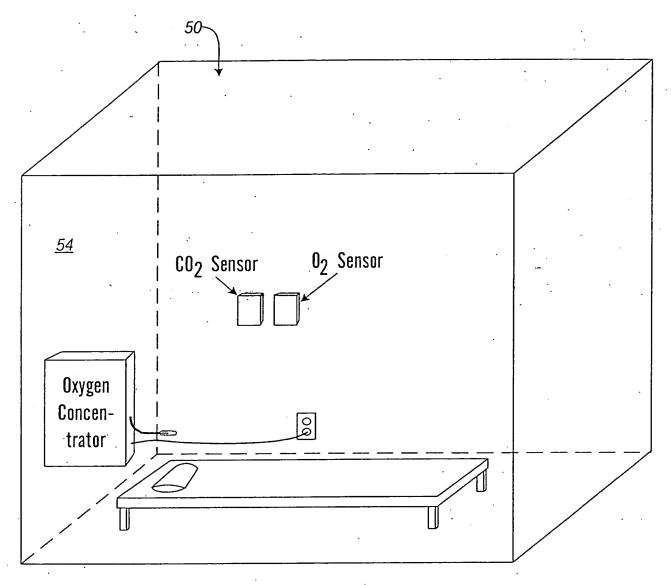
FIG. 7

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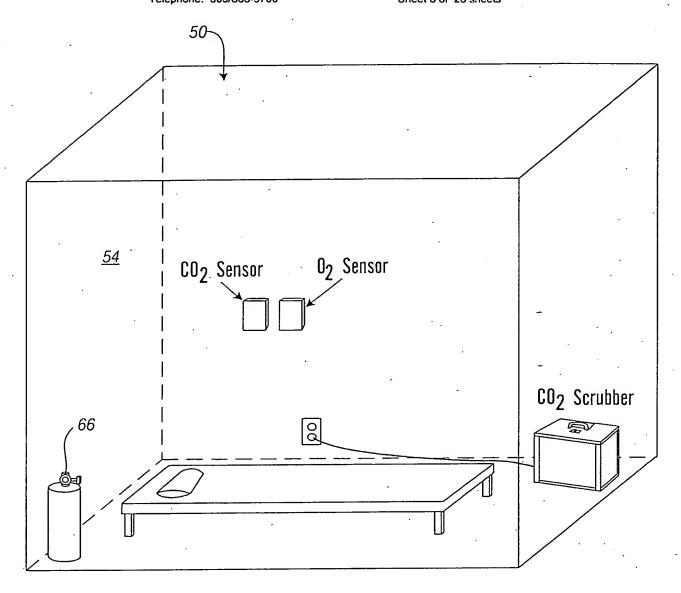
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Portable CMR, configured for use as a high altitude room.

FIG. 8

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Portable CMR, configured for use as a high altitude room.

FIG. 9

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C02 Sensor

Leakage
Control
Valves

WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT*

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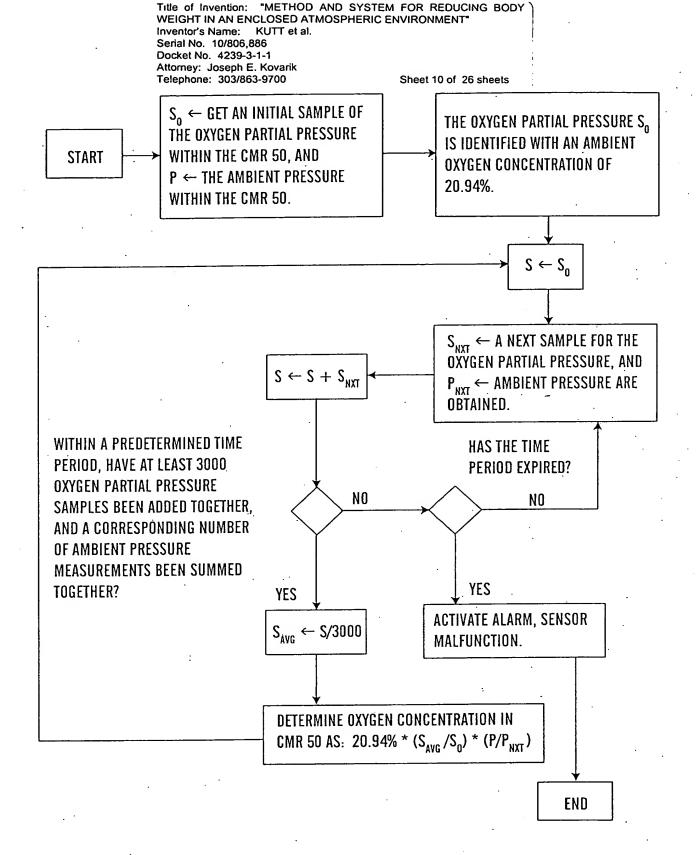
"METHOD AND SYSTEM FOR REDUCING BODY

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Portable CMR, configured for use as a high altitude room

FIG. 10



A flowchart for the calibration, averaging, and pressure compensation of the oxygen sensor.

FIG. 11

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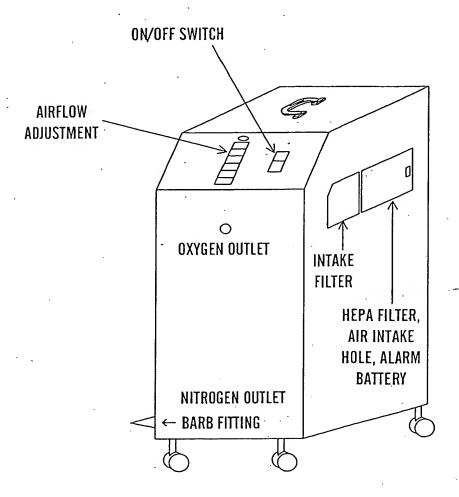


FIG. 12

Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY

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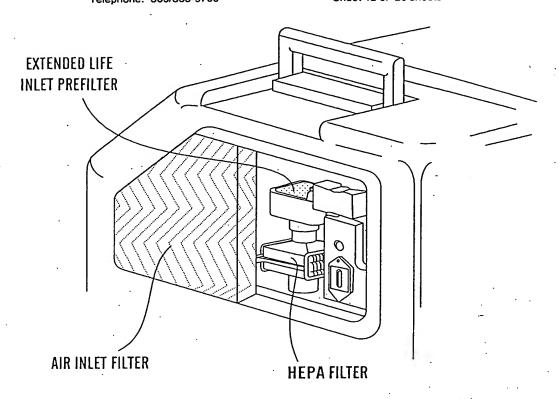


FIG. 13

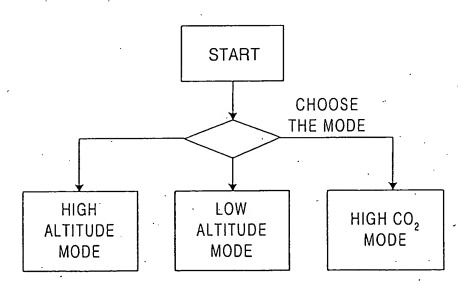


FIG. 14

Docket No. 4239-3-1-1 Attorney: Joseph E. Kovarik Telephone: 303/863-9700 Sheet 13 of 26 sheets FIG. 15 HIGH ALTITUDE MODE ENTER THE DESIRED ALTITUDE IS THE ACTUAL ALTITUDE WITHIN 500 FT OF ALTITUDE THE SIMULATED ALTITUDE? ENTER THE ACTUAL THE ALARM IS WARNING ALTITUDE ACTIVATED YES YES CALIBRATE THE O, SENSOR IS THE SIMULATED ALTITUDE MORE IS THE SIMULATED THAN 750 FT ABOVE THE DESIRED ALTITUDE GREATER THA IS THE SIMULATED ALTITUDE? THE O, THE FAN 16,500 FT? **ALTITUDE MORE THAN 250** CONCENTRATOR IS YES -**GATE IS** FT ABOVE THE DESIRED ACTIVATED DEACTIVATED ALTITUDE? YES 110 THE O, THE FAN GATE IS **CONCENTRATOR IS** DEACTIVATED ACTIVATED CHECH THE CO, CONCENTRATION IS THE CO, CONCENTRATION IS THE CO, CONCENTRA-TION GREATER THAN 7000? GREATER THAN 1000? THE CO, SCRUBBER IS THE FAN GATE IS YES -> ACTIVATED **ACTIVATED** NO THE ALARM IS THE CO, **ACTIVATED SCRUBBER IS** DEACTIVATED IS THE TEMPERATURE LESS THAN 40 F THE ALARM IS OR GREATER THAN 104 F? CHECK THE TEMPERATURE **ACTIVATED** IS THE PRESSURE LESS THAN 600 MB OR GREATER THAN 1100 MB? THE ALARM IS CHECK THE PRESSURE YES **ACTIVATED** 110

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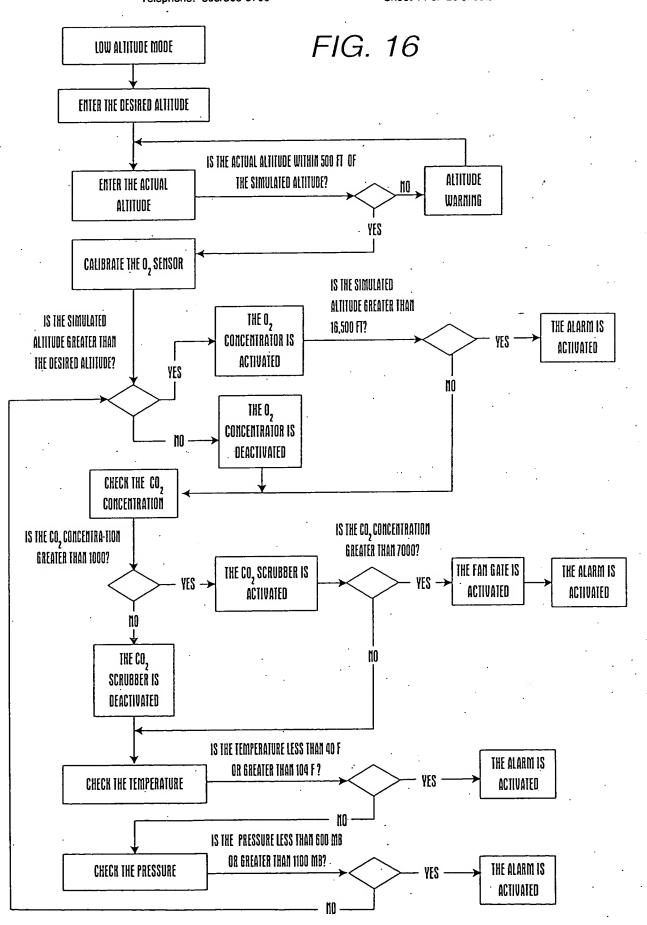
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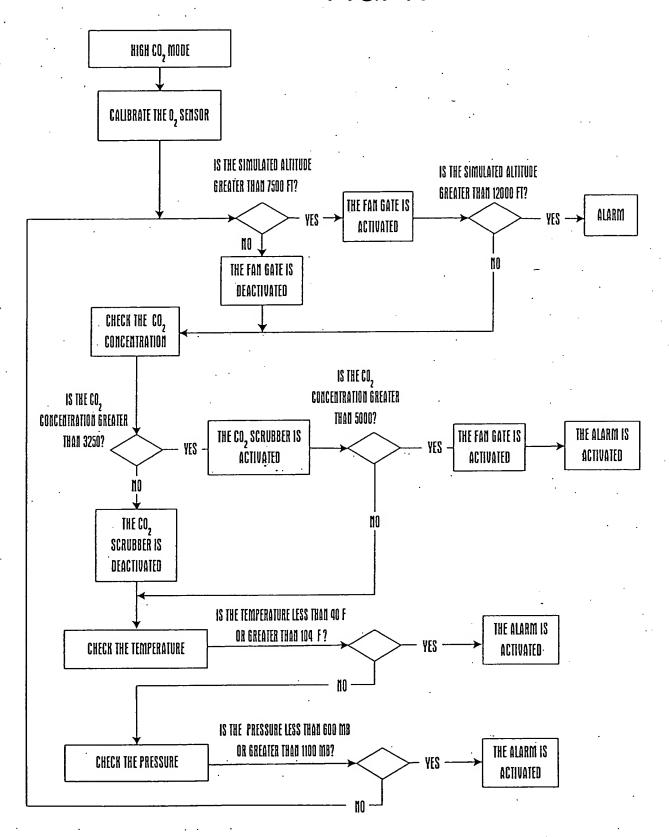
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FIG. 17



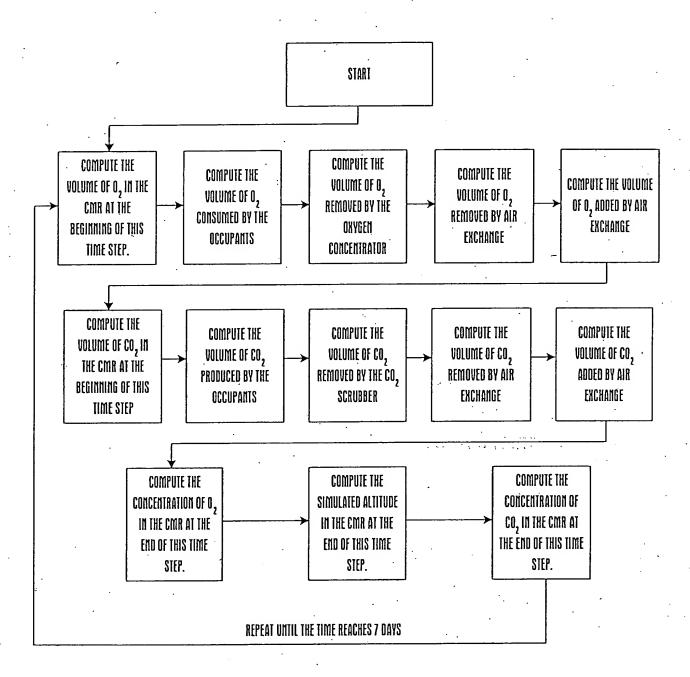
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FIG. 18



Title of Invention: "METHOD AND SYSTEM FOR REDUCING BOD WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT"

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Colorado Altitude Training Oxygen & CO₂ Variations in Rooms of Different Sizes Directions for using this spread sheet Change numbers in red only.

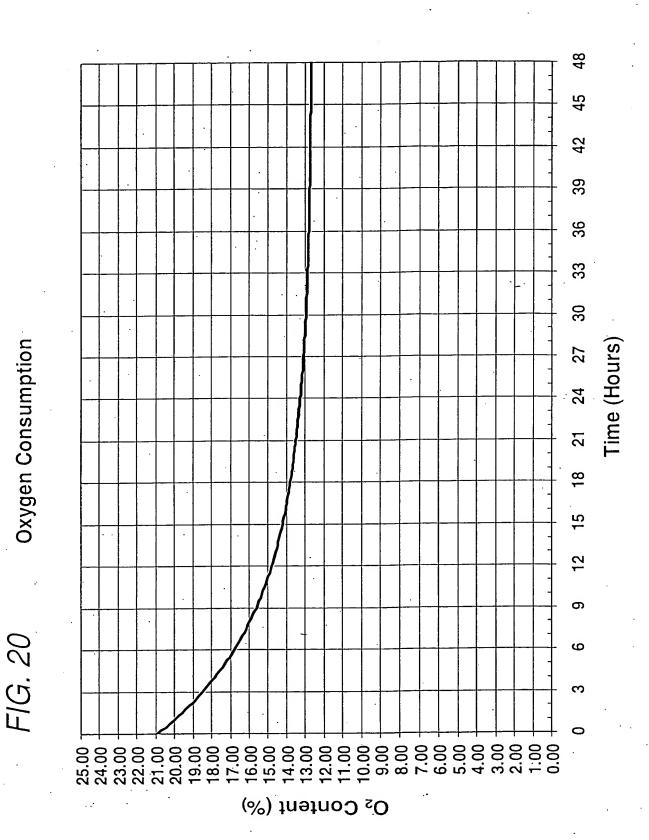
Room Size	·
Length (ft)	10
Width (ft)	10
Height (ft)	10
Room Volume (ft ³)	1000
Room Volume (I)	28,317
Altitude of Site (ft asl)	800
Sea Level Pressure (mb)	1013.25
Station Pressure (mb)	985
Number of People in Room	. 0
O ₂ Removal Rate per System (slpm)	5
Number of Systems	1
Per Person Surface Area (m ²)	1.8
Per Person Heat Generation (w/m²)	45
Resp. Coefficient (dimensionless)	0.83
Per Person O ₂ Consumption (slpm)	0.239477195
Per Person CO ₂ Production (slpm)	0.198766072
Initial O ₂ Content (%)	20.94
Initial Simulated Pressure (mb)	985
Initial Simulated Altitude (ft)	800
Outdoor CO ₂ Concentration (ppmv)	400
Initial Room CO ₂ Conc. (ppmv)	400
CO ₂ Scrubber Air Flow Rate (cfm)	10
CO ₂ Scrubber Efficiency (%)	80
Air Change Rate (ACH, hr ⁻¹)	0.043

Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY >

WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT*
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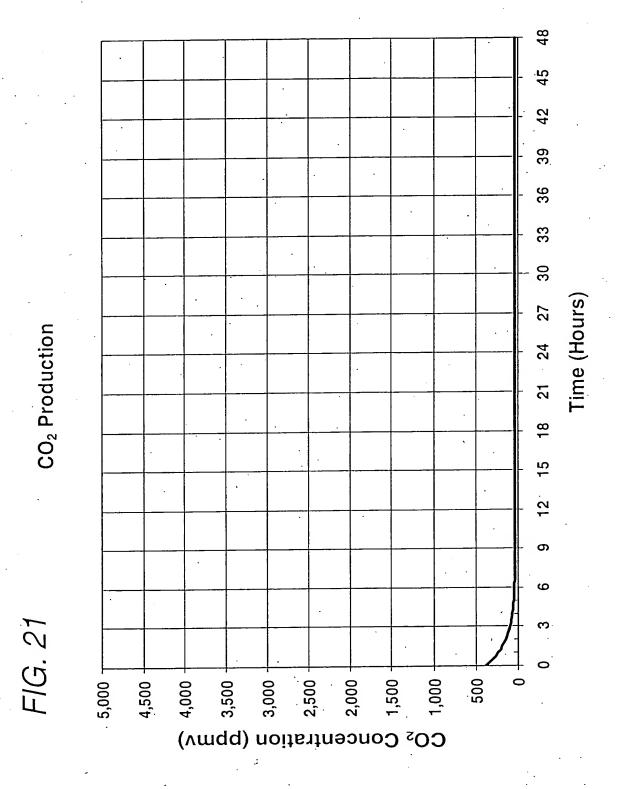


Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY, WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT"

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48 42 36 33 30 27 Time (Hours) Equivalent Altitude 48 ဖ 6,000 -14,000 12,000 10,000 8,000 18,000 24,000 22,000 20,000 28,000 26,000 30,000 Altitude (ft, asl)

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O₂ Content (%)

Oxygen Consumption

Attorney: Joseph E. Kovank Telephone: 303/863-9700 Sheet 22 of 26 sheets CO₂ Production 4,500 2,000 3,000 1,500 4,000 3,500 2,500 2,000 500 CO₂ Concentration (ppmv)

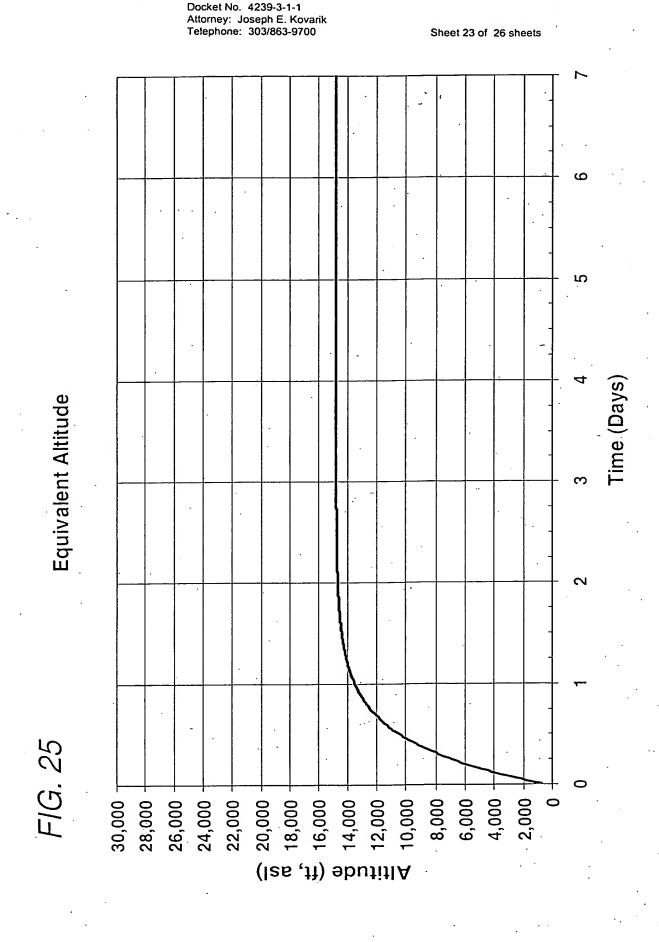
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KUTT et al.

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Serial No. 10/806,886 Docket No. 4239-3-1-1



Title of Invention:

Serial No. 10/806,886

Inventor's Name:

"METHOD AND SYSTEM FOR REDUCING BODY

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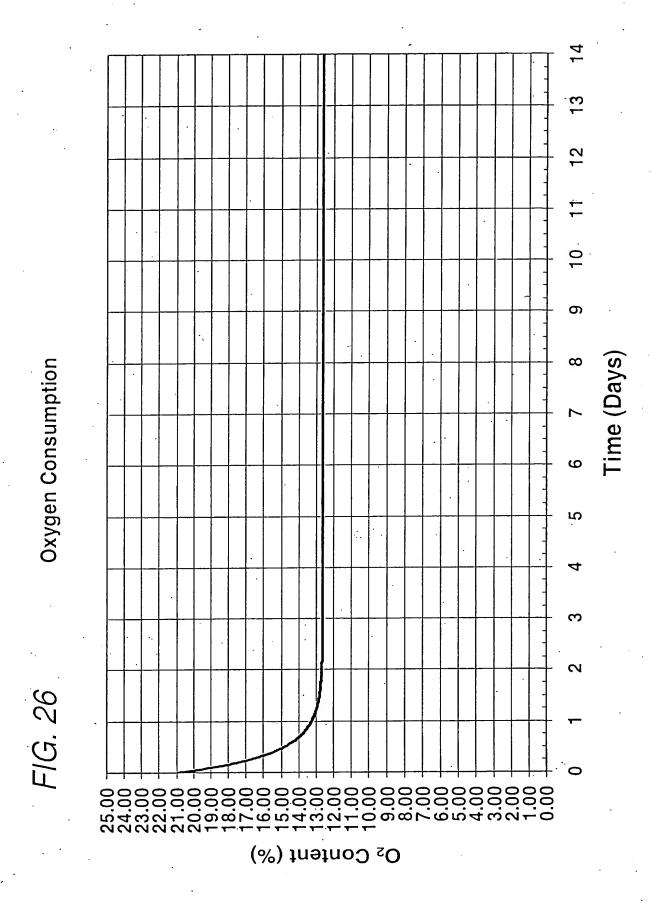
KUTT et al.

Title of Invention: "METHOD AND SYSTEM FOR REDUCING BODY" WEIGHT IN AN ENCLOSED ATMOSPHERIC ENVIRONMENT Inventor's Name: KUTT et al.

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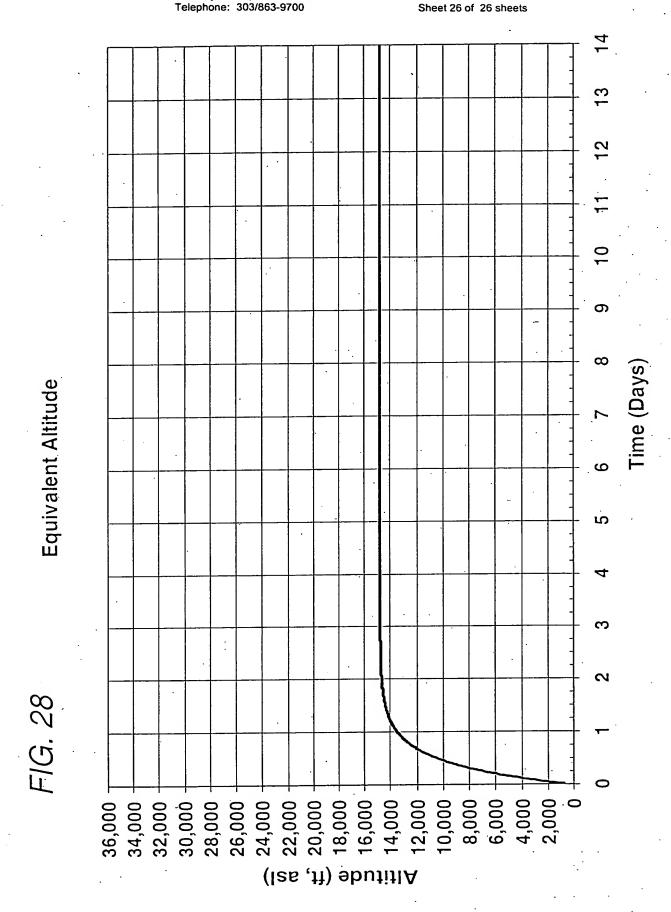


Inventor's Name: KUTT et al. Serial No. 10/806,886 Docket No. 4239-3-1-1 Attorney: Joseph E. Kovarik Telephone: 303/863-9700 Sheet 25 of 26 sheets 500 5,000 2,000 1,500 4,500 3,000 2,500 0 4,000 3,500

CO₂ Concentration (ppmv)

CO₂ Production

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